FCC Notice:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy. If not installed and used properly, in strict accordance with the manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/television technician for help and for additional suggestions.

The user may find the following booklet prepared by the Federal Communications Commission helpful "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office. Washington, DC 20402, Stock 004-000-00345-4

FCC Warning

The user is cautioned that changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Note : In order for an installation of this product to maintain compliance with the limits for a Class B device, shielded cables and power cord must be used.

CE Notice:

Following standards were applied to this product, in order to achieve compliance with the electromagnetic compatibility :
- Immunity in accordance with EN 50082-1: 1992
- Emissions in accordance with EN 55022: 1987 Class B.

T TABLE OF CONTENTS

P PREFACE

HOT-603 mainboard is a highly integrated IBM PC/AT compatible system board. The design will accept AMD K5, K6, Intel Pentium P54C, Pentium MMX and Cyrix/IBM 6x86, 6x86L, 6x86MX processors and also features high-performance pipelined burst secondary cache memory support with size of 1024KB or 512KB. The memory subsystem is designed to support up to 512 MB of EDO RAM, Standard Fast Page DRAM and SDRAM in standard 72-pin SIMM socket and 168-pin 3.3 V DIMM socket.

HOT-603 provides a new level of I/O integration. AMD-640 chipset provides increased integration and improved performance over other chipset designs. The AMD-640 chipset provides an integrated Bus Mastering IDE controller with two high performance Ultra 33 DMA IDE interfaces for up to four IDE devices.

The onboard I/O controller provides the standard PC I/O functions: floppy interface, two FIFO serial ports, an IrDA device port and a SPP/EPP/ECP capable parallel port.

Up to four PCI local bus slots provide a high bandwidth data path for data-movement intensive functions such as graphics, and up to three ISA slots complete the I/O function.

The HOT-603 provides the foundation for cost effective, high performance, highly expandable platforms, which deliver the latest in Pentium processor and I/O standard.

1 FEATURES

The HOT-603 Mainboard is carefully designed for the demanding PC user who wants high performance and many intelligent features in a compact package:

AMD Chipset:

Features AMD-640 Chipset with I/O subsystems.

CPU Support:

AMD K6 166~266 MHz, K5 PR75~PR166,
Intel Pentium 75~200 MHz, Pentium MMX 166~233 MHz,
Cyrix/IBM 6x86 P120+~P166+, 6x86L P166+ and 6x86MX PR166~PR266

Secondary Cache:

Onboard 1024KB or 512KB Pipelined Burst Cache.

Versatile Memory Supports:

Equipped with four SIMM sockets to support (4, 8, 16, 32, 64 and 128MB) 72-pin EDO or FP memory modules and two DIMM sockets to (8, 16, 32, 64, or 128MB) 168-pin SDRAM memory modules up to 512 MB.

PCI and ISA Expansion Slots:

Provides four 32-bit PCI slots and three 16-bit ISA slots.

Onboard I/O Chip:

Provides one Floppy port; one optional PS/2 mouse connector; two high-speed UART compatible serial ports and one parallel port with ECP and EPP capabilities. Serial Port 2 can also be directed from COM2 to the Infrared Module for wireless connections.

Onboard PCI Bus Master IDE Controller:

Two Ultra DMA/33 Bus Master IDE Ports supports four IDE devices up to 33 MB/sec IDE transfers and supports Enhanced PIO Modes 3 and 4 and Bus Master IDE DMA Mode 2 devices.

Onboard 12-pin AT and 20-pin ATX Power Supply:

Provides AT and ATX power connector onboard.
ATX power supports soft-on/off function.

System BIOS:

Provides licensed Award V4.51PG BIOS on Flash EEPROM.
Supports Green PC, DMI and Bundled with Symbios Login(NCR) SDCM V4.0 SCSI BIOS.
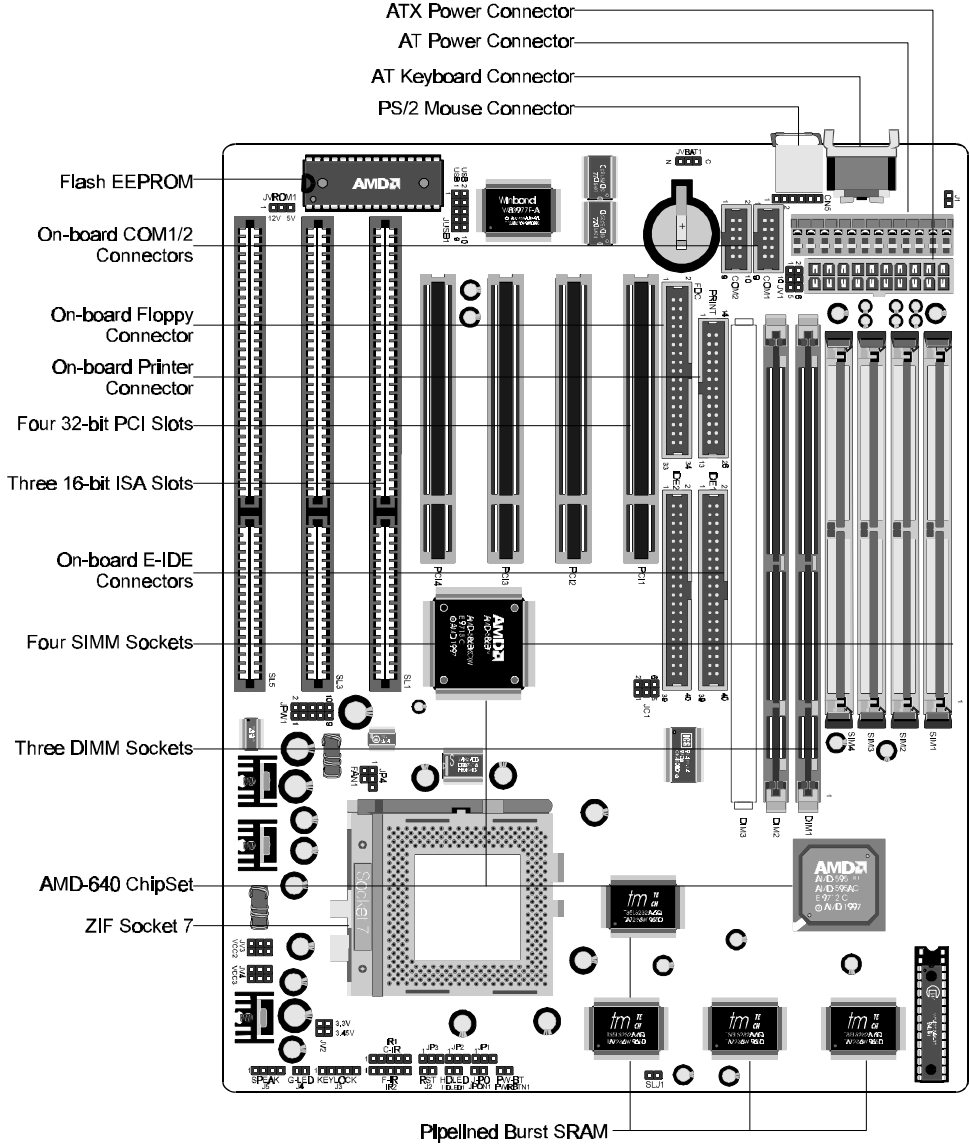
ACPI:

Support ACPI (Advanced Configuration and Power Interface) function. ACPI provide more Energy Saving Features for the future operating system supporting OS Direct Power Management (OSPM) functionality.

Board Size:

3/4 baby AT compact size 220mm x 280mm.

ACCESSORIES OF HOT-603

ATX Power Connector

AT Power Connector

AT Keyboard Connector

PS/2 Mouse Connector

Flash EEPROM

On-board COM1/2 Connectors

On-board Floppy Connector

On-board Printer Connector

Four 32-bit PCI Slots

Three 16-bit ISA Slots

On-board E-IDE Connectors

Four SIMM Sockets

Three DIMM Sockets

AMD-640 ChipSet

ZIF Socket 7

Pipelined Burst SRAM

2 Hardware Configuration

Jumper Setting

Jumper pin headers show on right side are used to configure system clock, CPU multiplier and CPU voltages.

System Clock - JC1

JC1 is a 6-pins header jumper which is used to adjust System Clock from 50MHz to 83 MHz.


CPU Multiplier - JP1, JP2 and JP3

JP1, JP2 and JP3 are 3-pins header jumper which is used to adjust CPU core multiplier from 1.5X to 5.5X.

CPU Voltages

JPW1, JV2, JV3 and JV4 are used to adjust onboard voltages output from Switching type regulators to CPU by inserting or removing mini jumper from pin headers.

Those hardware settings are made through the use of jumper caps to connect jumper pins on the main board. The jumpers will be show graphically such as ▦ to connect pins 3&4 and 5&6, and ▦ to connect pins 1&2 and 3&4 for six pin jumpers. Jumpers will be show graphically such as ▦ to connect pins 2&4 and ▦ to connect pins 3&4 for four pin jumpers.

Jumpers with two pins will be shown as ▮ for Short (On) and ▯ for Open (Off). To connect the pins, simply place a plastic jumper cap over the two pins as diagramed.

7
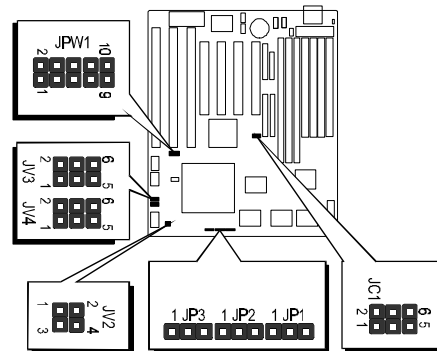
CPU Clock Configuration - JC1, JP3, JP2 and JP1

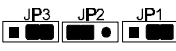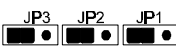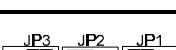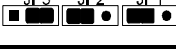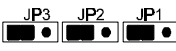| Processors	JC1	System Clock / Multiplier	Multiplier JP3 / JP2 / JP1
AMD-K6 266 MHz		66 MHz x 4	
AMD K6 233 MHz, Pentium MMX 233 MHz. Cyrix/IBM 6x86MX PR266		66 MHz x 3.5	
AMD-K6 200 MHz, AMD-K5 PR200, Pentium MMX 200 MHz, Pentium 200 MHz, Cyrix/IBM 6x86MX PR233		66 MHz x 3	
Cyrix/IBM 6x86L P200+, Cyrix/IBM 6x86 P200+		75 MHz x 2	
AMD-K6 166 MHz, AMD-K5 PR166, Pentium MMX 166 MHz, Pentium 166 MHz, Cyrix/IBM 6x86MX PR200		66 MHz x 2.5	
Pentium MMX 150 MHz, Pentium 150 MHz, Cyrix/IBM 6x86MX PR166		60 MHz x 2.5	
Pentium 133 MHz, Cyrix/IBM 6x86L P166+, Cyrix/IBM 6x86 P166+		66 MHz x 2	
Pentium 120 MHz, Cyrix/IBM 6x86L P150+, Cyrix/IBM 6x86 P150+		60 MHz x 2	
Cyrix/IBM 6x86 PR133+		55 MHz x 2	
Cyrix/IBM 6x86 P120+		50 MHz x 2	
AMD K5 PR100/PR133, Pentium 100 MHz		66 MHz x 1.5	
AMD-K5 PR90/PR120, Pentium 90 MHz		60 MHz x 1.5	
AMD-K5 PR75, Pentium 75 MHz		50 MHz x 1.5	

Table 2-1

1 JP3   1 JP2   1 JP1

JC1
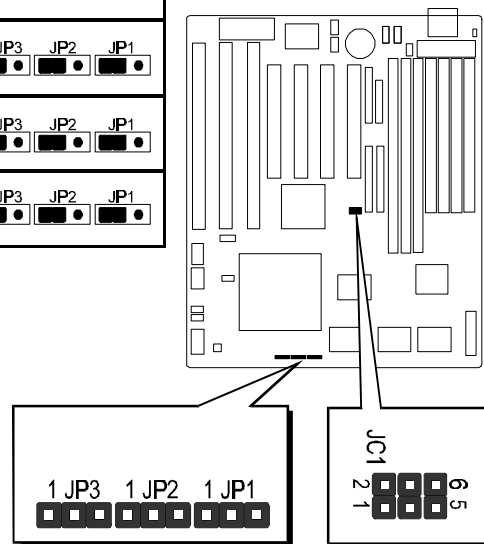
System Clock and CPU Multiplier on HOT-603

For whom like to set up system manually, listed tables show all the System Clock and CPU Multiplier that HOT-603 can offer.

Table 2-2 shows the System Clock from 50 MHz to 83 MHz.
Table 2-3 shows CPU Multiplier from 1.5X to 5.5X.

Note: Since PCI clock is half of system clock, 75MHz and 83MHz system clocks may cause PCI clock beyond PCI specification.

System Clock	JC1
50 MHz	
55 MHz	
60 MHz	
66 MHz	
75 MHz	
83 MHz	

Table 2-2
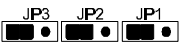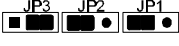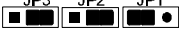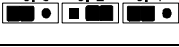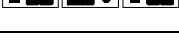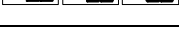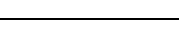
Multiplier	JP3 / JP2 / JP1
1.5 X	
2 X	
2.5 X	
3 X	
3.5 X	
4 X	
4.5 X	
5 X	
5.5 X	

Table 2-3

CPU Voltage Configuration - JPW1, JV2, JV3 and JV4

Voltage			CPU Type	Jumper-Setting			
Type	Vcore	Vio		JPW1	JV3	JV4	JV2
Single	3.52V	3.52V	3.52V AMD K5 ABx, Pentium P54C VRE, Cyrix/IBM 6x86	[jumper]	[jumper]	[jumper]	[jumper]
	3.3V	3.3V	Pentium P54C STD, Cyrix/IBM 6x86	[jumper]			3.45V
Dual	3.2V	3.3V	AMD-K6 233 / 266 MHz	[jumper]			
	2.9V	3.3V	AMD-K6 166 / 200 MHz, Cyrix 6x86MX	[jumper]	[jumper]	[jumper]	[jumper]
	2.8V	3.3V	Pentium P55C MMX, Cyrix 6x86L	[jumper]			3.3V
	2.1V	3.3V	AMD-K6 266 / 300 MHz	[jumper]			

Table 2-4

10
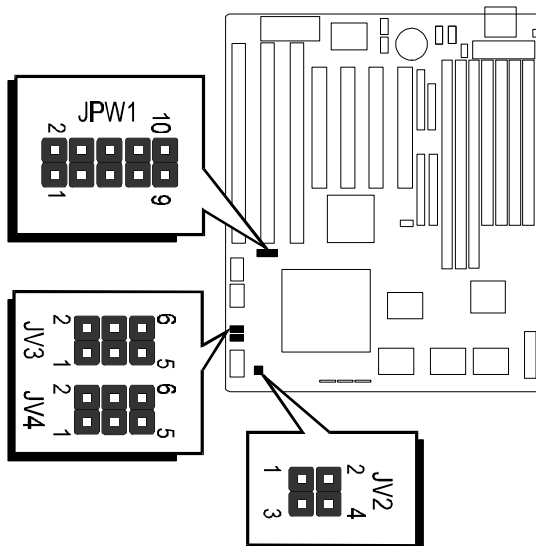
Flash EEPROM Vpp - JVROM1

HOT-603 mainboard supports two types of Flash EEPROM: 5 volt and 12 volt. By setting up jumper JVROM1, the main board can use both 5V or 12V flash EEPROM with new system BIOS files as they come available.

JVROM1 Pin 2-3 Close for 5V Flash EEPROM
JVROM1 Pin 1-2 Close for 12V Flash EEPROM
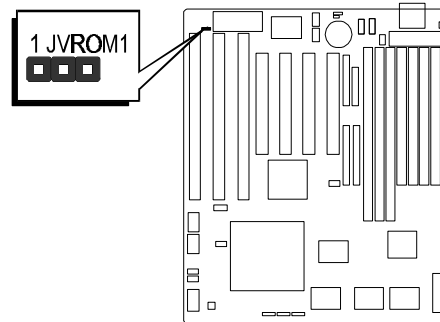
Clear CMOS - JVBAT1

HOT-603 mainboard supports jumper **JVBAT1** for discharging mainboard's CMOS memory.

This jumper can clear the CMOS data stored in the sub-system chip. To clear the CMOS data please follow listed steps:

1) Turn off the PC,
2) Remove the jumper cap from JVBAT1 pin 1-2,
3) Insert the jumper cap to JVBAT1 pin 2-3 for a brief while,
4) Remove the jumper cap from JVBAT1 pin 2-3,
5) Reinsert the jumper cap to JVBAT1 pin 1-2,
6) Turn on the PC.
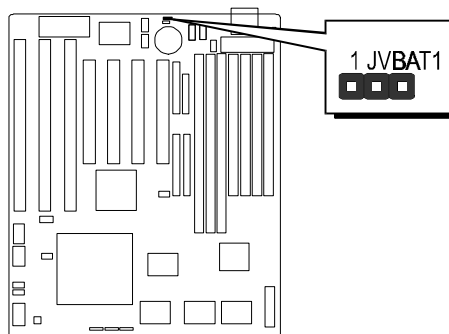
Linear Burst Feature

HOT-603 support Cyrix/IBM processor (6x86, 6x86L and 6x86MX) "Linear Burst" feature. When enable this feature, processor use linear address sequence during burst cycles to improve Cyrix processor performance.

Enabling Linear Burst feature have to set jumper SLJ1 to close and set category of **Linear Burst** on **Chipset Feature Setup** of BIOS to enabled.

When not using Cyrix/IBM processor, please set jumper SLJ1 to open. The category of **Linear Burst** on **Chipset Feature Setup** of BIOS will not show up. (please also refer to page 26)

Linear Burst Setup	Jumper SLJ1	"Linear Burst" category on Chipset Feature Setup of BIOS
Enable	�	Enabled
Disable	● ●	Disabled

Table 2-5

SLJ1
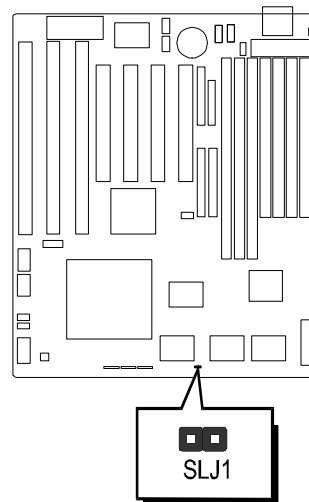
Power Supply Type Select

HOT-603 provide both AT and ATX power connector on-board, AT and ATX power supply are available on HOT-603. Jumper AT-P is used to set what type of power supply is pluged to the main board.

Power Supply Type	Outline	J1
12-Pin AT Type		▮
20-Pin ATX Type		● ●

Table 2-6

AT Power Connector

ATX Power Connector
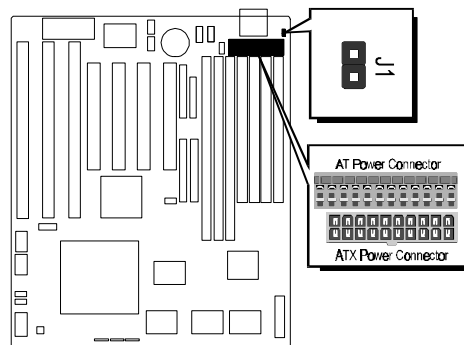
Connectors & Sockets

Connectors & Sockets

ITEM	FUNCTION	ITEM	FUNCTION
SIM1, 2, 3, 4	On-board SIMM sockets	JUSB1	Universal Serial Bus (USB) Connectors
DIMM1, 2, 3	On-board 3.3V DIMM sockets	IR1/IR2	Infra-Red/Fast Infra-Red Connectors
PCI1, 2, 3, 4	On-board PCI Slots	FAN1	Cooling Fan Connector
SL1, 3, 5	On-board ISA Slots	J4	Green LED
IDE1	On-board PCI Primary IDE Connector	HDLED1	On-board Enhanced IDE R/W LED Connector
IDE2	On-board PCI Secondary IDE Connector	J2	Hardware Reset Switch Connector
CN7	On-board Floppy Controller Connector	J3	Power LED and Keylock Connector
PRINT1	On-board Parallel Port Connector	J5	PC Speaker Connector
COM1	On-board Serial port-1 Connector	CN3	ATX Power Supply Connector
COM2	On-board Serial Port-2 Connector	CN6	AT Power Supply Connector
CN5	On-board PS/2 Mouse Port Connector	PWRBTN1	Momentary Type ATX Power Switching Connector
		JPON1	Permanent Type ATX Power Switch Connector

Table 2-7
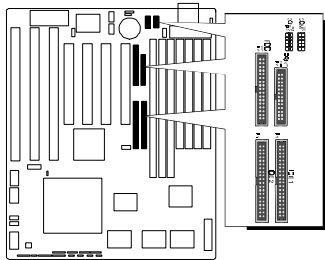
IDE, Floppy, Parallel and Serial port connectors

The main board shipped with one 40-pin ribbon cable for IDE H.D.D , one 34-pin ribbon cable for F.D.D, one 25-pin ribbon cable for printer and two 9-pin ribbon cable for COM port devices. Ribbon cables should always be connected with the red stripe on the Pin 1 side of the connector.
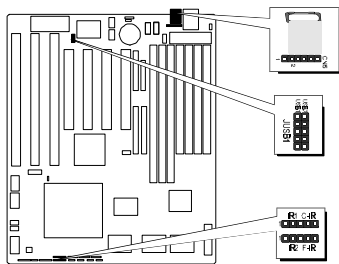
PS/2 Mouse connector

The main board provides a mini DIN connector or a 6 pins PS/2 mouse header for optional PS/2 mouse cable. Diagram on the right side indicates the pinout of the 6-pin header.
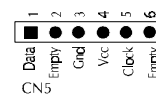
HOT-603 mainboard supplies two types of optional PS/2 mouse adapter cable, type 1 have 6-holes plug with hole 2 and hole 6 wireless; type 2 have 5-holes plug with hole 2 wireless.
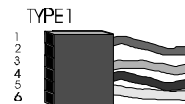
Caution : When a PS/2 mouse is used, make sure connect PS/2 mouse adapter cable hole 1 to the pin 1 of onboard PS/2 connector (CN5). Reversed connecting may cause damage to your PS/2 mouse.

13

USB Connectors Pin-out

	USB2		
	USB1		
Vcc	■	●	GND
Data -	●	●	GND
Data +	●	●	+ Data
GND	●	●	- Data
GND	●	■	Vcc
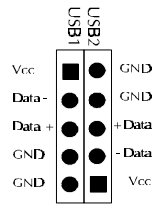
USB1, USB2 - USB connectors

The main board provides two sets USB (Universal Serial Bus) connectors - USB1 and USB2 for USB devices use.

IR1, IR2 - Infrared module connectors

The main board provides a 5-pin infrared and fast infrared connectors as an optional infrared module for wireless transmitting and receiving.

IR1
1 2 3 4 5
■ ● ● ● ●
IRTX GND IRIX VCC VCC
■ ● ● ● ●
IR2 Fast-IR
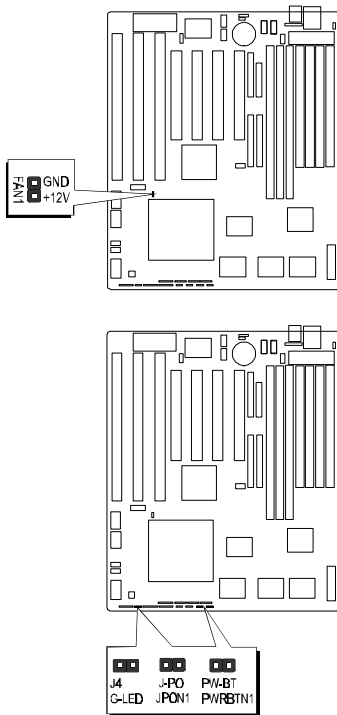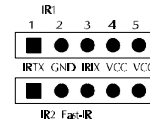
FAN1- 12V cooling fan power connector

The main board provides an onboard 12V cooling fan power connector which provide maximum 100 mAMP(1.2W) current each for CPU cooling fan. Depending on the fan maker, the wiring and plug may be different. The red wire should be connected to +12V and black wire should be connected to ground (GND).

FAN1
■ GND
● +12V

J4 - Green LED connector

J4 is a 3-pin Green LED connector, the user can connect a LED on it to display power management status.

J4   J-PO   PW-BT
G-LED   JPON1   PWRBTN1

PWRBTN1 - ATX Power Switch Button Connector

(Available only when ATX power supply is used).

The system power can be controlled by a momentary switch connector. Pushing the switch button will turn the system off .

Note:
   When a AT Power Supply is used to HOT-603, please do not connect any momentary switch to PWRBTN1.

J1

AT Power Connector

ATX Power Connector
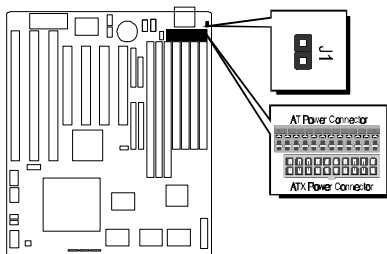
AT and ATX Power connectors

The main board provides both AT and ATX Power connector. ATX power supports soft power on/off function.

3 | Memory Configuration

The HOT-603 mainboard provides four 72-pin SIMM sockets and two 168-pin DIMM sockets that make it possible to install up to 512MB of RAM. The SIMM socket support 4MB, 8MB, 16MB, 32MB, 64MB and 128MB 5V single- or double-side fast page or EDO DRAM modules, and DIMM socket support 8MB, 16MB, 32MB, 64MB, and 128MB 3.3V single- or double-side SDRAM, fast page, or EDO modules.

The four SIMM sockets are arranged in two banks of two sockets each, the two DIMM socket are arranged in two banks of one socket each. Each bank provides a 64/72-bit wide data path.

Note:
- ❐ **Maximum memory size is 512MB total for all SIMM.**
- ❐ **Maximum memory size is 256MB total for all DIMM.**
- ❐ **If using SIMM modules, each bank must be filled with a pair of same modules.**
- ❐ **The user should not populate both 5V SIMM modules & 3.3V DIMM modules at the same time.**

The memory configuration tables on next page list the SIMMs and DIMMs memory configuration.
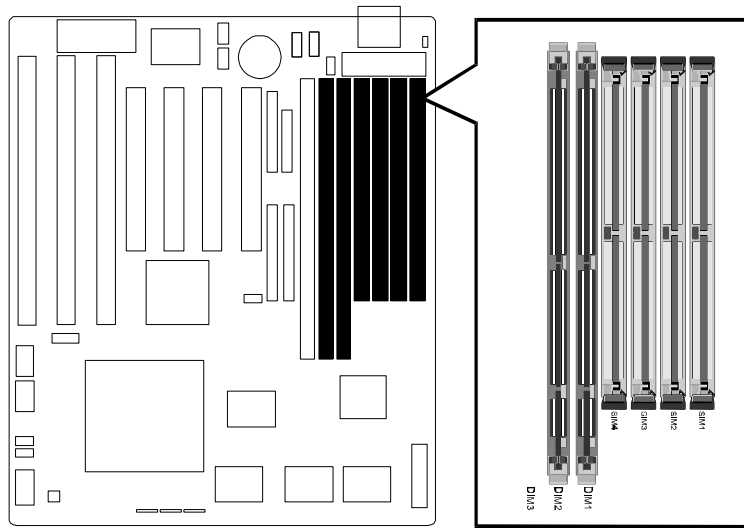
SIM 1	SIM 2	SIM 3	SIM 4	DIM 1	DIM 2	TOTAL
4 MB	4 MB	——	——	——	——	8 MB
4 MB	4 MB	4 MB	4 MB	——	——	16 MB
8 MB	8 MB	——	——	——	——	16 MB
4 MB	4 MB	8 MB	8 MB	——	——	24 MB
8 MB	8 MB	8 MB	8 MB	——	——	32 MB
16 MB	16 MB	——	——	——	——	32 MB
4 MB	4 MB	16 MB	16 MB	——	——	40 MB
8 MB	8 MB	16 MB	16 MB	——	——	48 MB
16 MB	16 MB	16 MB	16 MB	——	——	64 MB
32 MB	32 MB	——	——	——	——	64 MB
4 MB	4 MB	32 MB	32 MB	——	——	72 MB
8 MB	8 MB	32 MB	32 MB	——	——	80 MB
16 MB	16 MB	32 MB	32 MB	——	——	96 MB
32 MB	32 MB	32 MB	32 MB	——	——	128 MB
64 MB	64 MB	——	——	——	——	128 MB
4 MB	4 MB	64 MB	64 MB	——	——	136 MB
8 MB	8 MB	64 MB	64 MB	——	——	144 MB
16 MB	16 MB	64 MB	64 MB	——	——	160 MB
32 MB	32 MB	64 MB	64 MB	——	——	192 MB
64 MB	64 MB	64 MB	64 MB	——	——	256 MB
128 MB	128 MB	——	——	——	——	256 MB
128 MB	128 MB	128 MB	128 MB	——	——	512 MB
——	——	——	——	8 MB	——	8 MB
——	——	——	——	8 MB	8 MB	16 MB
——	——	——	——	8 MB	16 MB	24 MB
——	——	——	——	16 MB	——	16 MB
——	——	——	——	16 MB	16 MB	32 MB
——	——	——	——	16 MB	32 MB	48 MB
——	——	——	——	32 MB	——	32 MB
——	——	——	——	32 MB	32 MB	64 MB
——	——	——	——	32 MB	64 MB	96 MB
——	——	——	——	64 MB	——	64 MB
——	——	——	——	64 MB	64 MB	128 MB
——	——	——	——	64 MB	128 MB	192 MB
——	——	——	——	128 MB	——	128 MB
——	——	——	——	128 MB	128 MB	256 MB

4 Flash Utility

This chapter briefly discusses Award Flash utility provides instructions to guide you through updating your old BIOS. The file name we use to program here is test.bin, and the file name to save old BIOS is 603.OLD.   Please note that those file names are not absolute. They are only examples to let you have a more clear understanding of the updating process.

How to Begin

1. Please type "awdflash" and press the ENTER key to begin the updating process.

2. Once you enter, you will see a main menu displaying:

3. Move the cursor to "File Name to Program: "

4. Type the program name "test.bin", and then press the ENTER key.

5. At the bottom of the menu, you will be requested to answer:

   "Do You Want to Save BIOS (Y/N)? "

```
        FLASH  MEMORY  WRITER v5.32B
    Copyright (C) 1993, Award Software, Inc.,

    For AMD-UP2-W83977B-2A5LCH29C DATE: 07/21/97
         Flash Type - MXIC 28F1000AP /12V

  File Name to Program : test.bin




  Error Message:  Are you sure to program (y/n)
```
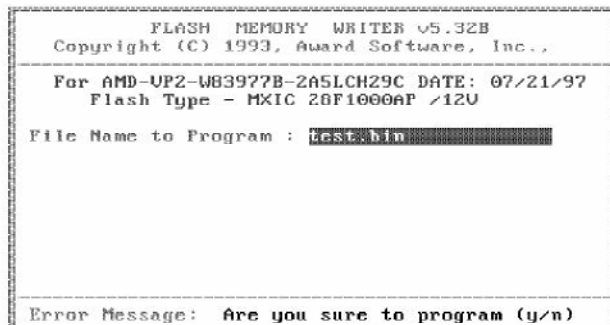
The following manual is intended to guide you through the process of both "No" and "Yes" cases respectively.

If "No"

If you do not wish to save the old BIOS:

1. Please type "N", and then press the ENTER key.

2. Then you will be requested to answer:
   "Are You Sure to Program? "

3. Answer "N" if you do not want to program, and then it will exit.

```
                FLASH  MEMORY  WRITER v5.32B
           Copyright (C) 1993, Award Software, Inc.,
      ─────────────────────────────────────────────────
        For AMD-VPZ-W83977B-ZA5LCH2YC DATE: 07/21/97
             Flash Type - MXIC 28F1000AP /12U

        File Name to Program : test.bin

        File Name to Save  :   603.old




      ─────────────────────────────────────────────────
        Error Message:  Are you sure to program (y/n)
```

If "Yes"

To save the old BIOS:

1. Please respond "Y", and then press the ENTER key.

2. Move the cursor to "File Name to Save: "

3. Type file name "603.OLD", and then press the ENTER key. (Your old BIOS will be saved in the file name you create. In this case, the old BIOS is saved in the file name, 603.OLD).

4. Then you will be requested to answer:

    "Are You Sure to Program (Y/N)? "

5. Type "Y" to begin programming, and press the ENTER key.

6. When the programming is finished, the showing message will appear:

7. Once you see the showing message "Power Off or Reset System", please re-start your system.

8. When you power on the computer again, you will find your old BIOS has already been successfully updated.

To view a complete usage of FLASH utility, please type "awdflash /?" and press the ENTER key.

Notes About Award Flash Utility

Please note that Award Flash Utility cannot run under EMM386 or QEMM. Thus, when executing the command "awdflash", an error message will appear:

    "Error Message: Fail — Due to EMM386 or QEMM !"

18

5 BIOS Setup

HOT-603 BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed RAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press <Del> immediately will allow you to enter Setup. The other way to enter Setup is to power on the computer, when the below message appear briefly at the bottom of the screen during the POST (Power On Self Test), press <Del> key or simultaneously press <Ctrl>,<Alt>, and <Esc> keys.

"TO ENTER SETUP BEFORE BOOT PRESS CTRL-ALT-ESC OR DEL KEY"

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF the ON or pressing the "RESET" button on the system case. You may also restart by simultaneously press <Ctrl>,<Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to,

"PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP"

Main Menu

```
              ROM PCI/ISA BIOS (2A5LCH29)
                   CMOS SETUP UTILITY
                  AWARD SOFTWARE, INC.

   STANDARD CMOS SETUP           INTEGRATED PERIPHERALS

   BIOS FEATURES SETUP           IDE HDD AUTO DETECTION

   CHIPSET FEATURES SETUP        SUPERVISOR PASSWORD

   POWER MANAGEMENT SETUP        USER PASSWORD

   PNP/PCI CONFIGURATION         SAVE & EXIT SETUP

   LOAD BIOS DEFAULTS            EXIT WITHOUT SAVING

   LOAD SETUP DEFAULTS

   Esc : Quit                    ↑ ↓ → ←   : Select Item
   F10 : Save & Exit Setup       (Shift)F2 : Change Color
```

Standard CMOS setup

This setup page includes all items in a standard compatible BIOS.

BIOS features setup

This setup page includes all items of Award special enhanced features.

Chipset features setup

This setup page includes all items of chipset features.

Power Management Setup

This setup page includes all items of Power Management features.

PnP/PCI Configuration setup

This item specifies the value (in units of PCI bus blocks) of the latency timer for the PCI bus master and the IRQ level for PCI device. Power-on with BIOS defaults

Load BIOS Defaults

BIOS defaults loads the values required by the System for the maximum performance. However, you can change the parameter through each Setup Menu.

Load Setup Defaults

Setup defaults loads the values required by the system for the O.K. performance. However, you can change the parameter through each Setup Menu.

Integrated Peripherals

This setup page includes all items of peripheral features.

IDE HDD auto detection

Automatically configure IDE hard disk drive parameters.

Supervisor Password

Change, set, or disable supervisor password. It allows you to limit access to the system and Setup, or just to Setup.

User Password

Change, set, or disable user password. It allows you to limit access to the system and Setup, or just to Setup.

Save & Exit setup

Save CMOS value change to CMOS and exit setup

Exit without saving

Abandon all CMOS value changes and exit setup.

Standard CMOS Setup

```
                    ROM PCI/ISA BIOS (2A5LCHZ9)
                       STANDARD CMOS SETUP
                      AWARD SOFTWARE, INC.

  Date (mm:dd:yy) : Fri, Jul 25 1997
  Time (hh:mm:ss) : 18 : 26 : 59

  HARD DISKS          TYPE    SIZE   CYLS HEAD PRECOMP LANDZ SECTOR   MODE

  Primary Master   : Auto       0       0    0       0     0      0   AUTO
  Primary Slave    : Auto       0       0    0       0     0      0   AUTO
  Secondary Master : Auto       0       0    0       0     0      0   AUTO
  Secondary Slave  : Auto       0       0    0       0     0      0   AUTO

  Drive A : 1.44M, 3.5 in.
  Drive B : None                        ┌──────────────────────────────┐
                                        │      Base Memory:        0K   │
  Video   : EGA/VGA                     │   Extended Memory:       0K   │
  Halt On : All Errors                  │      Other Memory:     512K   │
                                        │  ──────────────────────────   │
                                        │     Total Memory:      512K   │
                                        └──────────────────────────────┘
  ESC : Quit              ↑ ↓ → ←   : Select Item     PU/PD/+/- : Modify
  F1  : Help             (Shift)F2 : Change Color
```

Date

The date format is <day>, <month> <date> <year>. Press <F3> to show the calendar.

Time

The time format is <hour> <minute> <second>. The time is calculated base on the 24-hour military-time clock. For example. 5 p.m. is 17:00:00.

Hard Disks Type

This item identify the types of hard disk drives that has been installed in the computer. There are 46 predefined types and a user definable type.

Press PgUp or PgDn to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this item. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

If you select Type User, related information is asked to be entered to the following items. Enter the information directly from the keyboard and press <Enter>. Those information should be provided in the documentation from your hard disk vendor or the system manufacturer.

The user may also set those items to AUTO to auto configure hard disk drives parameter when system power-on.

If a hard disk drive has not been installed select NONE and press <Enter>.

22

Drive A type/Drive B type

This item specifies the types of floppy disk drive A or drive B that has been installed in the system.

Video

This item selects the type of adapter used for the primary system monitor that must matches your video display card and monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

Error halt

This item determines if the system will stop, when an error is detected during power up.

Memory

This item is display-only. It is automatically detected by POST (Power On Self Test) of the BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the mainboard, or 640K for systems with 640K or more memory installed on the mainboard.

Extended Memory

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1MB in the CPU's memory address map.

BIOS Features Setup

```
                        ROM PCI/ISA BIOS (2A5LCH29)
                            BIOS FEATURES SETUP
                           AWARD SOFTWARE, INC.

Virus Warning             : Disabled   Video  BIOS Shadow  : Enabled
CPU Internal Cache        : Enabled    C8000-CBFFF Shadow  : Disabled
External Cache            : Enabled    CC000-CFFFF Shadow  : Disabled
Quick Power On Self Test  : Enabled    D0000-D3FFF Shadow  : Disabled
Boot Sequence             : A,C,SCSI   D4000-D7FFF Shadow  : Disabled
Swap Floppy Drive         : Disabled   D8000-DBFFF Shadow  : Disabled
Boot Up Floppy Seek       : Enabled    DC000-DFFFF Shadow  : Disabled
Boot Up NumLock Status    : On
Boot Up System Speed      : High
Gate A20 Option           : Fast
Memory Parity/ECC Check   : Enabled
Typematic Rate Setting    : Disabled
Typematic Rate (Chars/Sec): 6
Typematic Delay (Msec)    : 250
Security Option           : Setup
IDE Second Channel Control: Enabled    ESC : Quit         ↑↓→← : Select Item
PCI/VGA Palette Snoop      : Disabled   F1  : Help         PU/PD/+/- : Modify
OS Select For DRAM > 64MB  : Non-OS2    F5  : Old Values   (Shift)F2 : Color
                                        F6  : Load BIOS  Defaults
                                        F7  : Load Setup Defaults
```

Virus Warning

When this item is enabled, the Award BIOS will monitor the boot sector and partition table of the hard disk drive for any attempt at modification. If an attempt it made, the BIOS will halt the system and the following error message will appear. Afterwards, if necessary, you will be able to run an anti-virus program to locate and remove the problem before any damage is done.

```
              !WARNING!
     Disk boot sector is to be modified
Type "Y" to accept write or "N" to abort write
          Award Software, Inc.
```

CPU Internal/External Cache

This item enables CPU internal cache and external cache to speed up memory access.

Quick Power On Self Test

This item speeds up Power On Self Test (POST) after you power on the computer. If it is set to Enabled, BIOS will shorten or skip some check items during POST.

Boot Sequence

This item determines which drive computer searches first for the disk operating system. Default setting is A, C, SCSI.
BIOS also support system boot from CD-ROM drive or SCSI hard disk drive.

24

Swap Floppy Drive

When this item enables, the BIOS will swap floppy drive assignments so that Drive A: will function as Drive B: and Drive B: as Drive A:.

Boot Up Floppy Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks.

Boot Up NumLock Status

When this option enables, BIOS turns on *Num Lock* when system is powered on.

Gate A20 Option

This entry allows you to select how the gate A20 is handled. The gate A20 is a device used to address memory above 1 Mbytes. Initially, the gate A20 was handled via a pin on the keyboard. Today, while keyboards still provide this support, it is more common, and much faster, set to *Fast* for the system chipset to provide support for gate A20.

Memory Parity/ECC Check

This item allows you to set memory error checking, Enabled or Disabled.

Boot Up System Speed

This option sets the speed of CPU at system boot time. The options are **High** or **Low**.

Typematic Rate Setting/Typematic Rate/Typematic Delay

This determines if the typematic rate and typematic delay are to be used. When the typematic rate setting is enabled, **typematic rate** allows you select the rate at which the keys are accelerated and **typematic delay** allows you to select the delay between when the key was first depressed and when the acceleration begins.

Security Option

This item allows you to limit access to the System and Setup, or just to Setup.
When *System* is selected, the System will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
When *Setup* is selected, the System will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

PCI VGA Palette Snoop

This item must be set to enabled if there is a MPEG ISA card installed in the system, and disabled if there is no MPEG ISA card installed in the system.

OS Select For DRAM > 64MB

This item allows you to access the memory that over 64 MB in OS/2.

Video BIOS Shadow/XXXXX-XXXXX Shadow

These items determine whether Video BIOS or optional ROM will be copied to RAM.

Chipset Features Setup

```
                    ROM PCI/ISA BIOS (2A5LCH29)
                         CMOS SETUP UTILITY
                        CHIPSET FEATURES SETUP

 DRAM Auto Configuration  : 70 ns
 DRAM Timing Control      : Turbo
 SDRAM  Single/Burst Wrte : Burst
 SDRAM  Cycle Length      : 2
 SDRAM  Bank Interleave   : 2 Bank

 Sustained 3T Write       : Disabled
 2 Bank PBSRAM            : 3-1-1-1
 Read Pipeline            : Enabled
 Write Pipeline           : Enabled
 Linear Burst             : Enabled

 Video BIOS  Cacheable    : Disabled
 System BIOS Cacheable    : Disabled
 Memory Hole At 15Mb Addr.: Disabled
                                         ESC : Quit         ↑↓→← : Select Item
 OnChip USB               : Enabled      F1  : Help         PU/PD/+/- : Modify
 USB Keyboard Support     : Disabled     F5  : Old Values   (Shift)F2 : Color
                                         F6  : Load BIOS  Defaults
                                         F7  : Load Setup Defaults
```

NOTE:

Those item on this page are concering AMD-640 chipset timing, please do not try to adjust by yourself unless you are familiar with them.

Auto Configuration

This item auto configures the item of DRAM Timing Control. **DRAM Timing Control** will be set to "Auto" when this item set to **60 ns** or **70 ns**. **DRAM Timing Control** may be set to "Normal", "Medium", "Fast" or "Turbo" when this item set to Disabled.

DRAM Timing Control

This item set the DRAM Read/Write timings that the system uses. The options are "Normal", "Medium", "Fast", "Turbo" or "Disabled".

Linear Burst

This item allows the user to enable the linear burst feature of Cyrix/IBM processor to improve system performance.

When not using Cyrix/IBM processor, this category will not show up.
(please also refer to page 12)

Video BIOS Cacheable

This item allows the user to set the video BIOS C000~C7FF areas that are cacheable or non-cacheable.

26

System BIOS Cacheable

This item allows the user to set the system BIOS F000~FFFF areas that are cacheable or non-cacheable.

Memory Hole At 15M-16M

In order to improve performance, some space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB.

OnChip USB

This item is used to defined USB controller is "*Enable*" or "*Disable*".

USB Keyboard Support

This item is used to defined USB Keyboard is "*Enable*" or "*Disable*".

Power Management Setup

```
                 ROM PCI/ISA BIOS (2A5LCH29)
                    POWER MANAGEMENT SETUP
                    AWARD SOFTWARE, INC.

Power Management   : Disable        IRQ4  (COM 1)       : Primary
PM Control by APM  : Yes            IRQ5  (LPT 2)       : Primary
Video Off Option   : Suspend -> Off IRQ6  (Floppy Disk): Primary
Video Off Method   : V/H SYNC+Blank IRQ7  (LPT 1)       : Primary
Conserve Mode      : Disabled       IRQ8  (RTC Alarm)   : Disabled
MODEM Use IRQ      : 3              IRQ9  (IRQ2 Redir)  : Secondary
                                    IRQ10 (Reserved)    : Secondary
      ** PM Timers **               IRQ11 (Reserved)    : Secondary
HDD Power Down     : Disable        IRQ12 (PS/2 Mouse)  : Primary
Doze Mode          : Disable        IRQ13 (Coprocessor): Primary
Suspend Mode       : Disable        IRQ14 (Hard Disk)   : Primary
                                    IRQ15 (Reserved)    : Disabled
      ** PM Events **
VGA                : OFF
LPT & COM          : LPT/COM
HDD & FDD          : ON             ESC : Quit          ↑↓→← : Select Item
DMA/master         : OFF            F1  : Help          PU/PD/+/- : Modify
RTC Alarm Resume   : Disabled       F5  : Old Values  (Shift)F2 : Color
Primary INTR       : ON             F6  : Load BIOS  Defaults
IRQ3  (COM 2)      : Primary        F7  : Load Setup Defaults
```

Power Management

This item determines the options of the power management function. *Max Saving* puts the system into power saving mode after a brief period of system inactivity; *Min Saving* is the same as *Max Saving* except the time of the system inactivity period is longer; *Disabled* disables the power saving feature; *User Defined* allows you to set power saving options according to your preference.

PM Control by APM

If this item set to *No*, system BIOS will be ignored and APM calls the power to manage the system.
If this item setup to *Yes*, system BIOS will wait for APM's prompt before it enter any PM mode e.g. *DOZE, STANDBY* or *SUSPEND*.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen This option only writes blanks to the video buffer.
DPMS Allows the BIOS to control the video display card if it supports the DPMS feature..

Video Off After

This item define when to activate the video off feature for monitor power management. The settings are N/A, Doze, Standby and Suspend.

HDD Power Down

This item defines the continuous HDD idle time before the HDD enters power saving mode (motor off). The options are from 1 min to 15 min and *Disabled*.

Doze Mode, Suspend Mode

These items set the period of time after which each of these mode activate, the periods are from 1 min to 1 hour.

Doze Mode   When enabled and after the set time of system inactivity, CPU clock will run at slower speed while all other devices still operate at full speed.
Suspend Mode   When enabled and after the set time of system inactivity, all devices except CPU will be shut off.

VGA Active Monitor

If this item is set to Enabled, the VGA activity event will be monitored to reload global timer.

** PM Events **

If these items is set to Disabled, the system activity event will not be monitored to reload global timer.

If these items is set to Enabled, the system activity event will be monitored to reload global timer.

These items including VGA, LPT & COM, HDD & FDD, DMA/master, RTC Alarm Resume, Primary INTR and IRQ[3-7, 9-15].

PCI Configuration Setup

```
              ROM PCI/ISA BIOS (2A5LCH29)
                  PNP/PCI CONFIGURATION
                   AWARD SOFTWARE, INC.

PNP OS Installed      : No        CPU to PCI Write Buffer  : Enabled
Resources Controlled By  : Manual   PCI Dynamic Bursting     : Enabled
Reset Configuration Data : Disabled PCI Master 0 WS Write    : Enabled
                                    PCI Peer Concurrency     : Enabled
IRQ-3  assigned to : Legacy ISA    PCI Delay Transaction    : Disabled
IRQ-4  assigned to : Legacy ISA
IRQ-5  assigned to : PCI/ISA PnP   PCI IRQ Actived By  : Edge
IRQ-7  assigned to : PCI/ISA PnP   PCI IDE IRQ Map To  : PCI-AUTO
IRQ-9  assigned to : PCI/ISA PnP
IRQ-10 assigned to : PCI/ISA PnP
IRQ-11 assigned to : PCI/ISA PnP
IRQ-12 assigned to : PCI/ISA PnP
IRQ-14 assigned to : PCI/ISA PnP
IRQ-15 assigned to : PCI/ISA PnP
DMA-0  assigned to : PCI/ISA PnP
DMA-1  assigned to : PCI/ISA PnP   ESC : Quit          ↑↓→← : Select Item
DMA-3  assigned to : PCI/ISA PnP   F1  : Help          PU/PD/+/- : Modify
DMA-5  assigned to : PCI/ISA PnP   F5  : Old Values  (Shift)F2 : Color
DMA-6  assigned to : PCI/ISA PnP   F6  : Load BIOS  Defaults
DMA-7  assigned to : PCI/ISA PnP   F7  : Load Setup Defaults
```

PNP OS Installed

When this item is set to Yes, it will allow the PnP OS(Windows 95) control the system resources except PCI devices and PnP boot devices.
Default setting is *No*.

Resources Controlled By

The Award Plug and Play BIOS has the capability to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system as Windows 95.

Reset Configuration Data

This item allows you to determine whether to reset the configuration data or not.

IRQ 3/4/5/7/9/10/11/12/14/15, assigned to

These items allow you to determine the IRQ assigned to the ISA bus and is not available for PCI slot.

Choices are *Legacy ISA* and *PCI/ISA PnP*.

DMA 0/1/3/5/6/7 assigned to

These items allow you to determine the DMA assigned to the ISA bus and is not available for PCI slot.

Choices are *Legacy ISA* and *PCI/ISA PnP*.

PCI IRQ Activated by

This item sets the method by which the PCI bus recognize that an IRQ service is being requested by a device. You should never change the default configuration unless advised otherwise by your System's manufacturer. Choices are *Level*(default) and *Edge*.

PCI IDE IRQ Map to

This items allows you to configure your system to the type of IDE disk controller in use. By default, Setup assumes that your controller is an ISA device rather than a PCI controller.

If you have equipped your system with a PCI controller, changing this allows you to specify which slot has the controller and which PCI interrupt (A, B, C or D) is associated with the connected hard drives.

Remember that this setting refers to the hard disk drive itself, rather than individual partitions. Since each IDE controller supports two separate hard disk drives, you can select the INT# for each. Again, you will note that the primary has a lower interrupt than the secondary as described in "*Slot x Using INT#*" above.

Selecting "*PCI Auto*" allows the system to automatically determine how your IDE disk system is configured.

Integrated Peripherals

```
                ROM PCI/ISA BIOS (2A5LCH29)
                  INTEGRATED PERIPHERALS
                   AWARD SOFTWARE, INC.

 OnChip IDE First Channel : Enabled     Onboard IR Controller    : Enabled
 OnChip IDE Second Channel: Enabled     IR Address Select        : 2E8H
 IDE Prefetch Mode        : Enabled     IR Mode                  : IrDA
 IDE HDD Block Mode       : Enabled     IR Transmittiion delay   : Enabled
 IDE Primary Master PIO   : Auto        IR IRQ Select            : IRQ10
 IDE Primary Slave  PIO   : Auto        IR Mode Use DMA          : Disable
 IDE Secondary Master PIO : Auto
 IDE Secondary Slave  PIO : Auto        PHONERING WAKE UP        : Enabled
 IDE Primary Master UDMA  : Auto        RTC POWER ON Controller  : Enabled
 IDE Primary Slave  UDMA  : Auto        RTC POWER ON(YEAR Ctrl)  : 1997
 IDE Secondary Master UDMA: Auto        RTC POWER ON(Month Ctrl) : 7
 IDE Secondary Slave  UDMA: Auto        RTC POWER ON(DATE Ctrl)  : 31
 KBC input clock          : 8 MHz       RTC POWER ON(Hour Ctrl)  : 8
 Onboard FDC Controller   : Enabled     RTC POWER ON(Minute Ctrl): 0
 Onboard Serial Port 1    : Auto
 Onboard Serial Port 2    : Auto       ESC : Quit        ↑↓→← : Select Item
 Onboard Parallel Port    : 378/IRQ7   F1  : Help        PU/PD/+/- : Modify
 Parallel Port Mode       : SPP        F5  : Old Values  (Shift)F2 : Color
                                       F6  : Load BIOS  Defaults
                                       F7  : Load Setup Defaults
```

OnChip IDE First Channel

This item is used to defined on chip Primary PCI IDE controller is *Enable* or *Disable* setting.

OnChip IDE Second Channel

This item is used to defined on chip secondary PCI IDE controller is *Enable* or *Disable* setting.

IDE HDD Block Mode

This item is used to set IDE HDD Block Mode. If your IDE Hard Disk supports block mode, then you can enable this function to speed up the HDD access time. If not, please disable this function to avoid HDD access error.

IDE Primary/Secondary Master/Slave PIO

In these items, there are five modes defined in manual mode and one automatic mode. There are *0, 1, 2, 3, 4,* and *AUTO* is the default settings for on board Primary/Secondary Master/Slave PIO timing.

IDE Primary/Secondary Master/Slave UDMA

On this mainboard, Intel 430TX PCIset improves IDE transfer rate using Bus Master UltraDMA/33 IDE which can handle data transfer up to 33MB/sec. The options are *Disabled* and *Enabled,* and *Enabled* is the default settings for on board Primary/Secondary Master/Slave *UltraDMA33*.

KBC Input Clock

This item specifies onboard keyboard controller clock input. default is 8 MHz.

Onboard FDC Control

This item specifies onboard floppy disk drive controller. This setting allows you to connect your floppy disk drives to the onboard floppy connector. Choose the "*Disabled*" settings if you have a separate control card.

Onboard Serial Port 1/2

This item is used to define onboard serial port 1/Port2 to *3F8/IRQ4, 2F8/IRQ3, 3E8/ IRQ4, 2E8/IRQ3, Auto* or *Disabled.*

Onboard Parallel Port

This item specifies onboard parallel port address to *378H, 278H, 3BCH* or *Disabled.*

Parallel Port Mode

This item specifies onboard parallel port mode. The options are *SPP* (Standard Parallel Port), *EPP*(Enhanced Parallel Port), *ECP* (Extended Capabilities Port), and *EPP+ECP.*

ECP Mode Use DMA

This item specifies *DMA* (Direct Memory Access) channel when ECP device is in use. The options are *DMA 1* and *DMA 3.* This item will not show up when SPP and EPP printer mode is selected.

Onboard IR Controller

The main board support IrDA(HPSIR) and Amplitudes Shift Keyed IR(ASKIR) infrared through COM 2 port. This item specifies onboard Infra Red mode to *IrDA 1.0, ASKIR, MIR 0.57M, MIR 1.15M, FIR* or *Standard (Disabled).*
Note : FIR is not available currently.

Phone Ring wake Up

This item determine the system will resume by activating of modem ring.

RTC Power On Controller

(This feature is available for ATX power only)
This item determine the system will resume by activity of R.T.C. If enabled this feature and enter resume date and time. When date and time expire, system will power-on itself from power off.

Listed five items will shown up when enabled "**RTC Power On Controller**".

RTC Power On (Yeat Ctrl)

This item determine the year when system will resume from power-off.

RTC Power On (Month Ctrl)

This item determine the month when system will resume from power-off.

RTC Power On (Date Ctrl)

This item determine the date when system will resume from power-off.

RTC Power On (Hour Ctrl)

This item determine the hour when system will resume from power-off.

RTC Power On (Minute Ctrl)

This item determine the Minute when system will resume from power-off.

Password Setting

This section describes the two access modes that can be set using the options found on the Supervisor Password and User Password.

```
                    ROM PCI/ISA BIOS (2A59GH2B)
                        CMOS SETUP UTILITY
                        AWARD SOFTWARE, INC.
  ┌─────────────────────────────────┬──────────────────────────────────┐
  │  STANDARD CMOS SETUP             │    INTEGRATED PERIPHERALS         │
  │                                  │                                  │
  │  BIOS FEATURES SETUP             │    IDE HDD AUTO DETECTION         │
  │                                  │                                  │
  │  CHIPSET FEATURES SETUP          │    SUPERVISOR PASSWORD            │
  │                                  │                                  │
  │  POWER MANAGEMENT SETUP          │    USER PASSWORD                  │
  │                                  │                                  │
  │  PNP/PCI CONFIGURATION           │    SAVE & EXIT SETUP              │
  │                         ┌─────────────────────────────┐             │
  │  LOAD BIOS DEFAULTS     │ Enter Password:             │ UT SAVING   │
  │                         └─────────────────────────────┘             │
  │  LOAD SETUP DEFAULTS             │                                  │
  ├─────────────────────────────────┴──────────────────────────────────┤
  │  Esc : Quit                        ↑ ↓ → ←   : Select Item          │
  │  F10 : Save & Exit Setup           (Shift)F2 : Change Color         │
  ├─────────────────────────────────────────────────────────────────────┤
  │                  Change/Set/Disable Password                         │
  └─────────────────────────────────────────────────────────────────────┘
```

Supervisor Password and User Password

The options on the Password screen menu make it possible to restrict access to the Setup program by enabling you to set passwords for two different access modes: Supervisor mode and User mode.

In general, Supervisor mode has full access to the Setup options, whereas User mode has restricted access to the options. By setting separate Supervisor and User password, a system supervisor can limit who can change critical Setup values.

Enter Password

Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable password, just press <Enter> when you are prompted to enter password. A message will confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

Password Disable

If you select System at Security Option of BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup. If you select Setup at Security Option of BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

Warning : Retain a record of your password in a safe place. If you forget the password, the only way to access the system is to clear CMOS memory, please refer to "Clear CMOS" or "Clear Password" section.

HOT-603
AMD-K6™ processor
Based PCI MAIN BOARD

User's Manual